

Atty. Dkt. No. 039153-0363 (F0804)

REMARKS

Applicants respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

In the specification, paragraph [0013] has been amended with rewritten paragraph [0013] included. No new matter is added.

Claims 11 and 15 are currently being amended. Claims 21-24 are being added. No new matter is added. This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-4, 9-13, 15-17, 19-24 remain pending in this application.

In paragraph 1 of the Office Action, the Examiner has objected to the specification. Applicants has amended paragraph [0013] in accordance with the Examiner's comments. No new matter has been added. Withdrawal of the objection to the specification is respectfully requested.

In paragraph 3 of the Office Action, claims 15-17 and 19-20 are rejected under 35 U.S.C. § 112, second paragraph for indefiniteness. The Examiner states:

The phrase "an etching process the second" is unclear.

Applicants have amended claim 15 in accordance with the Examiner's comments. Accordingly, withdrawal of the rejection of claims 15-17 and 19-20 is respectively requested.

In paragraphs 4 and 5 of the Office Action, claims 1-3, 11-13, 15-17, and 19-20 are rejected under 35 U.S.C. § 1029(b) as being anticipated by U.S. Patent No. 5,688,704 ("Liu"). Examiner states:

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Liu discloses: . . . a gate dielectric layer . . . providing a silicon and nitrogen containing layer 17 (i.e., silicon nitride) . . . providing an oxide layer 19 . . . the second trench being nearer than the first trench.

Applicants respectfully traverse the rejection.

Each of the independent claims 1 and 15 recites that a gate dielectric layer is provided above a top surface of the substrate and the silicon and nitrogen containing layer is provided above the gate dielectric layer. In direct contrast, Liu utilizes a sacrificial layer 15. Layer 15 is not the gate dielectric layer. Liu relies on a process which grows a dielectric layer 29 after the trench has been formed. Liu requires an additional step not required by the present invention and in fact teaches away from the present invention by providing the gate conductor after a second gate dielectric is formed. See, Liu, column 2, lines 56-59. Accordingly, it is respectfully submitted that independent claim 1 and its dependent claims 2-4, 9-10 and 21 and 24, and independent claim 15, and its dependent claims 16-20 and 23 are patentable over Liu.

With reference to claim 11, a silicon rich nitride layer or silicon oxynitride layer is recited. The present application states:

Layer 40 is preferably a silicon and nitrogen containing layer. In one embodiment, layer 40 can be a silicon oxynitride layer (SION). In an alternative embodiment, layer 40 can be a silicon rich nitride layer (SiRN).

The use of silicon oxynitride and silicon rich nitride provides advantages with respect to etching.

In contrast to the present invention as recited in claim 11, Liu discloses the use of a nitride layer 17. Nitride layer 17 is disclosed as being silicon nitride. Nothing in Liu indicates that layer 17 can be a silicon oxynitride layer or a silicon rich nitride layer. Accordingly, withdrawal of the objection of claim 11 and its dependent claims, 12-13 and 22 is respectfully requested.

In paragraph 8 of the Office Action, claims 4 and 9-10 are rejected under 35 U.S.C. § 103 as being unpatentable over Liu. The Examiner states:

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Liu does not explicitly show the width for the first and second trenches as shown on instant claims 9-10, and using polishing process as shown in claim 4. It is well known in the art to use polishing process or etch-back process for planarization . . .

Applicants respectfully traverse the rejection.

As a preliminary matter, Applicants respectfully request the Examiner provide a reference under MPP2144.03 for the missing elements and limitations.

In addition, it is respectfully submitted that various dependent claims recite subject matter which is not shown or suggested by Liu. For example, claim 24 recites that the second aperture is formed using a RELACS polymer. A RELACS etching process, much less a RELACS polymer is not shown, described or suggested in Liu. In fact, Liu appears to rely upon a wet etching step to laterally remove layer 19, thereby providing apertures with two separate widths. Accordingly, it is respectfully submitted that Claim 24 is additionally patentable over the cited art.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 06-1447. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit

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Account No. 06-1447. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 06-1447.

Respectfully submitted,

Date March 3, 2004

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